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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,214	05/31/2001	Thomas P. Griego	31248-1001	2401
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PEACOCK MYERS AND ADAMS P C			MUTSCHLER, BRIAN L	
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ALBUQUERQUE, NM 871256927			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/872,214	Applicant(s) GRIEGO ET AL.	
	Examiner Brian L. Mutschler	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Comments

1. The objection to the specification has been overcome by Applicant's amendment.
2. The objection to the claims has been overcome by Applicant's amendment correcting the minor informalities.
3. The rejection of claims 3-5, 7, 8, and 10-24 under 35 U.S.C. 112, second paragraph, has been overcome by Applicant's amendment to the claims.

Drawings

4. The drawings were received on June 17, 2004. These drawings are acceptable.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hojyo (U.S. Pat. No. 3,425,926).

Regarding claims 1 and 9, Hojyo discloses a rotary flow-through electrodeposition apparatus comprising a platen (table) **4**, upon which an electrolytic cell (tank) **5** is mounted (fig. 1; col. 2, lines 16-28). The electrolytic cell **5** contains an electrode assembly having a cathode portion **8** and an anode portion **9** (fig. 1; col. 2,

lines 29-36). The electrolytic cell **5** undergoes planetary motion by revolving around two parallel axes (col. 2, line 67 to col. 3, line 2).

Regarding claims 6 and 9, the apparatus comprises means for imparting rotary motion using a power source to rotate a shaft **20** (col. 2, line 60 to col. 3, line 2).

Regarding claim 7, the platen **4** is mounted to a fixed shaft **20** (fig. 1). A drive gear (pinion) **21** is fixed on the shaft **20** and meshes with a planetary gear **22** (fig. 1; col. 2, lines 60-66).

Since Hojyo teaches all of the structural limitations recited in the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Ransohoff (U.S. Pat. No. 2,865,831).

Hojyo discloses a rotary flow-through electrodeposition apparatus comprising a platen (table) **4**, upon which an electrolytic cell (tank) **5** is mounted (fig. 1; col. 2, lines 16-28). The electrolytic cell **5** contains an electrode assembly having a cathode portion **8** and an anode portion **9** (fig. 1; col. 2, lines 29-36). The electrolytic cell **5** undergoes planetary motion by revolving around two parallel axes (col. 2, line 67 to col. 3, line 2).

The apparatus comprises means for imparting rotary motion using a power source to rotate a shaft **20** (col. 2, line 60 to col. 3, line 2). The platen **4** is mounted to a fixed shaft **20** (fig. 1). A drive gear (pinion) **21** is fixed on the shaft **20** and meshes with a planetary gear **22** (fig. 1; col. 2, lines 60-66).

Regarding claims 2 and 11, the apparatus of Hojyo comprises a bowl (electrolytic tank **5**) that holds an electrolytic solution and substrate material to be plated (figs. 1 and 2).

Regarding claim 10, the platen **4** is mounted to a fixed shaft **20** (fig. 1). A drive gear (pinion) **21** is fixed on the shaft **20** and meshes with a planetary gear **22** (fig. 1; col. 2, lines 60-66).

The apparatus of Hojyo differs from the instant invention because Hojyo does not disclose the following:

- a. A plurality of electrodes and means for serially applying electrical potential sequentially to the electrodes as the cell rotates, as recited in claims 2 and 11.
- b. Electrical potential is applied sequentially to individual ones of the electrodes, as recited in claim 12. (This is a method limitation.)
- c. Electrical potential is applied sequentially to interconnected groups of electrodes, as recited in claim 13. (This is a method limitation.)

Regarding claims 2 and 11-13, Ransohoff discloses a rotary electroplating machine comprising a plurality of cathode electrodes (col. 1, lines 58-59). Ransohoff further teaches that the electrodes should be connected sequentially so that only the

cathodes in contact with the substrates to be plated are connected, while the cathodes not in contact with the substrates are disconnected.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the electrode in the apparatus of Hojyo to use a plurality of electrodes that are sequentially connected as taught by Ransohoff because utilizing a plurality of electrodes and connecting them sequentially allows the apparatus to be run more efficiently by connecting only those electrodes in contact with the substrate.

9. Claims 3-5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Ransohoff (U.S. Pat. No. 2,865,831), as applied above to claims 2 and 10-13, and further in view of Colombier et al. (US 2002/0139685).

Hojyo and Ransohoff describe an apparatus having the limitations recited in claim 2 and 10-13 of the instant invention, as explained above in section 8.

Additionally, regarding claims 3, 4, 14 and 15, Ransohoff uses brush contacts **46**, which are collinear with the axis of rotation, to make sequential contact with the plurality of electrodes (col. 6, lines 2-6).

Regarding claims 5 and 16, which recite an intended use of the apparatus, Hojyo discloses that the substrate material is collected by centrifugal force at a portion maximally distanced from the axis of the shaft **20**, while rotation of the cell **5** would agitate and tumble the substrate material (fig. 3; col. 3, lines 3-27).

The apparatus described by Hojyo and Ransohoff differs from the instant invention because they do not disclose the use of a wire wheel electrical contact, as recited in claims 3 and 14.

Regarding claims 3 and 14, Colombier et al. disclose an electroplating apparatus and teach that mechanical electrical contact may be made using “rollers, wheels, friction contacts or brushes” (par. [0032]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the brush contacts in the apparatus described by Hojyo and Ransohoff to use a wire wheel electrical contact because Colombier et al. teach that wheel contacts and brush contacts may be equivalently used to make mechanical electrical connections.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Ransohoff (U.S. Pat. No. 2,865,831), as applied above to claims 2 and 10-13, and further in view of Griego et al. (U.S. Pat. No. 5,565,079) and Birkle et al. (U.S. Pat. No. 4,701,248).

Hojyo and Ransohoff describe an apparatus having the limitations recited in claim 2 and 10-13 of the instant invention, as explained above in section 8.

The apparatus described by Hojyo and Ransohoff differs from the instant invention because they do not disclose the following:

- a. A dome wall having a lower rim flange connectable to the bowl and an annular top rim defining a port, as recited in claim 8.

- b. A helical auger flange on the inside of the dome wall spiraling from the rim flange to the top rim, as recited in claim 8.

Griego et al. disclose a rotary flow-through electroplating apparatus comprising a dome wall **56** having an open top (fig. 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus described by Hojyo and Ransohoff to use a dome wall as taught by Griego et al. because the dome wall of Griego et al. would allow the easy removal and delivery of the substrate material by using its open top while also containing the substrate material within the plating area by virtue of the slanted walls.

Birkle et al. disclose an electroplating device for the treatment of a plurality of substrates using an auger, which provides "a guaranteed simple removal" and a high output (figure; col. 3, lines 8-14). Birkle et al. also teach that other known devices for the movement of goods through an electroplating device comprise a screw conveyor (auger) on an inside wall (col. 1, lines 35-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus described by Hojyo and Ransohoff to use an auger as taught by Birkle et al. because an auger simplifies the removal of the plated articles and yields a high output.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Ransohoff (U.S. Pat. No. 2,865,831) and Colombier et al. (US 2002/0139685), as applied above to claims 3-5 and 14-16, and further in view of Griego et al. (U.S. Pat. No. 5,565,079) and Birkle et al. (U.S. Pat. No. 4,701,248).

Hojyo, Ransohoff and Colombier et al. describe an apparatus having the limitations recited in claim 3-5 and 14-16 of the instant invention, as explained above in section 9.

The apparatus described by Hojyo, Ransohoff and Colombier et al. differs from the instant invention because they do not disclose the following:

- a. A dome wall having a lower rim flange connectable to the bowl and an annular top rim defining a port, as recited in claim 8.
- b. A helical auger flange on the inside of the dome wall spiraling from the rim flange to the top rim, as recited in claim 8.

Griego et al. disclose a rotary flow-through electroplating apparatus comprising a dome wall **56** having an open top (fig. 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus described by Hojyo, Ransohoff and Colombier et al. to use a dome wall as taught by Griego et al. because the dome wall of Griego et al. would allow the easy removal and delivery of the substrate material by using its open top while also containing the substrate material within the plating area by virtue of the slanted walls.

Birkle et al. disclose an electroplating device for the treatment of a plurality of substrates using an auger, which provides "a guaranteed simple removal" and a high output (figure; col. 3, lines 8-14). Birkle et al. also teach that other known devices for the movement of goods through an electroplating device comprise a screw conveyor (auger) on an inside wall (col. 1, lines 35-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus described by Hojyo, Ransohoff and Colombier et al. to use an auger as taught by Birkle et al. because an auger simplifies the removal of the plated articles and yields a high output.

12. Claims 18, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Griego et al. (U.S. Pat. No. 5,565,079) and Birkle et al. (U.S. Pat. No. 4,701,248).

Regarding claim 18, Hojyo discloses a rotary flow-through electrodeposition apparatus comprising a platen (table) **4**, upon which an electrolytic cell (tank) **5** is mounted (fig. 1; col. 2, lines 16-28). The electrolytic cell **5** contains an electrode assembly having a cathode portion **8** and an anode portion **9** (fig. 1; col. 2, lines 29-36). The electrolytic cell **5** undergoes planetary motion by revolving around two parallel axes (col. 2, line 67 to col. 3, line 2). The apparatus of Hojyo comprises a bowl (electrolytic tank **5**) that holds an electrolytic solution and substrate material to be plated (figs. 1 and 2).

Regarding claims 23 and 24, the apparatus comprises means for imparting rotary motion using a power source to rotate a shaft **20** (col. 2, line 60 to col. 3, line 2). The platen **4** is mounted to a fixed shaft **20** (fig. 1). A drive gear (pinion) **21** is fixed on the shaft **20** and meshes with a planetary gear **22** (fig. 1; col. 2, lines 60-66).

The apparatus of Hojyo differs from the instant invention because Hojyo does not disclose the following:

- a. A dome wall having a lower rim flange connectable to the bowl and an annular top rim defining a port, as recited in claim 8.
- b. A helical auger flange on the inside of the dome wall spiraling from the rim flange to the top rim, as recited in claim 8.

Griego et al. disclose a rotary flow-through electroplating apparatus comprising a dome wall **56** having an open top (fig. 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of Hojyo to use a dome wall as taught by Griego et al. because the dome wall of Griego et al. would allow the easy removal and delivery of the substrate material by using its open top while also containing the substrate material within the plating area by virtue of the slanted walls.

Birkle et al. disclose an electroplating device for the treatment of a plurality of substrates using an auger, which provides "a guaranteed simple removal" and a high output (figure; col. 3, lines 8-14). Birkle et al. also teach that other known devices for

the movement of goods through an electroplating device comprise a screw conveyor (auger) on an inside wall (col. 1, lines 35-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of Hojyo to use an auger as taught by Birkle et al. because an auger simplifies the removal of the plated articles and yields a high output.

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Griego et al. (U.S. Pat. No. 5,565,079) and Birkle et al. (U.S. Pat. No. 4,701,248), as applied above to claims 18, 23 and 24, and further in view of Ransohoff (U.S. Pat. No. 2,865,831).

Hojyo, Griego et al. and Birkle et al. describe an apparatus having the limitations recited in claims 18, 23 and 24 of the instant invention, as explained above in section 12.

The apparatus described by Hojyo, Griego et al. and Birkle et al. differs from the instant invention because they do not disclose a plurality of electrodes and means for serially applying electrical potential sequentially to the electrodes as the cell rotates, as recited in claim 19.

Ransohoff discloses a rotary electroplating machine comprising a plurality of cathode electrodes (col. 1, lines 58-59). Ransohoff further teaches that the electrodes should be connected sequentially so that only the cathodes in contact with the

substrates to be plated are connected, while the cathodes not in contact with the substrates are disconnected.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the electrode in the apparatus of Hojyo, Griego et al. and Birkle et al. to use a plurality of electrodes that are sequentially connected as taught by Ransohoff because utilizing a plurality of electrodes and connecting them sequentially allows the apparatus to be run more efficiently by connecting only those electrodes in contact with the substrate.

14. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hojyo (U.S. Pat. No. 3,425,926) in view of Griego et al. (U.S. Pat. No. 5,565,079), Birkle et al. (U.S. Pat. No. 4,701,248) and Ransohoff (U.S. Pat. No. 2,865,831), as applied above to claim 19, and further in view of Colombier et al. (US 2002/0139685).

Hojyo, Griego et al., Birkle et al. and Ransohoff describe an apparatus having the limitations recited in claim 19 of the instant invention, as explained above in section 12.

Additionally, Ransohoff uses brush contacts **46**, which are collinear with the axis of rotation, to make sequential contact with the plurality of electrodes (col. 6, lines 2-6).

Regarding claim 22, which recites an intended use of the apparatus, Hojyo discloses that the substrate material is collected by centrifugal force at a portion maximally distanced from the axis of the shaft **20**, while rotation of the cell **5** would agitate and tumble the substrate material (fig. 3; col. 3, lines 3-27).

The apparatus described by Hojyo, Griego et al., Birkle et al. and Ransohoff differs from the instant invention because they do not disclose the use of a wire wheel electrical contact, as recited in claim 20.

Colombier et al. disclose an electroplating apparatus and teach that mechanical electrical contact may be made using “rollers, wheels, friction contacts or brushes” (par. [0032]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the brush contacts in the apparatus described by Hojyo, Griego et al., Birkle et al. and Ransohoff to use a wire wheel electrical contact because Colombier et al. teach that wheel contacts and brush contacts may be equivalently used to make mechanical electrical connections.

Response to Arguments

15. Applicant's arguments filed June 17, 2004, have been fully considered but they are not persuasive.

16. Applicant argues, “Hojyo teaches against the present invention, which requires that ‘the plating cell is rotated at sufficiently high rpm to centrifugally cast the substrate material against the cathode contact’” (see page 10 of Applicant's response). This argument is not persuasive because the instant claims are apparatus claims and the intended use of the apparatus does not further limit the claim. Hojyo teaches all of the structural limitations recited in the claims. The intended use recited in the instant claims

do not structurally distinguish the apparatus of the instant claims from the apparatus of Hojyo.

17. Applicant further argues that “ultra-fine submicron or nanometer powders ... would not be uniformly platable using the apparatus disclosed in Hojyo because it cannot generate enough centrifugal force to adhere powder particles to the plating cell wall” (see page 10 of Applicant’s response). This argument is not persuasive because such limitations are not claimed and do not distinguish the instant claims structurally over the apparatus of the prior art. The instant claims do not disclose plating powders (only substrate material) or structural features that are required to perform electrodeposition on powders. What structural features make the apparatus of the prior art insufficient to perform the intended use? The claims should recite structural features that distinguish the claimed apparatus from the apparatus of the prior art.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (571) 272-1341. The examiner can normally be reached on Monday-Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLM
July 27, 2004


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